

HOWARD, (W.T.)

2 at time
25
28

WITH THE AUTHOR'S COMPLIMENTS.

REPORT

OF THE

SECTION ON OBSTETRICS AND GYNECOLOGY,

BY

WM. T. HOWARD, M. D.

Professor of the Diseases of Women and Children, and of Clinical Medicine, in the University of Maryland; Gynecologist to the University Hospital; Vice-President of the American Gynecological Society for 1880; Surgeon to the Hospital for the Women of Maryland, of Baltimore City; Gynecologist to the Union Protestant Infirmary; Consulting Physician to the Hebrew Hospital and Asylum Association of Baltimore City; Honorary Member of the State Medical Society of North Carolina, &c.



Reprinted from the Transactions of the Medical and Chirurgical Faculty of Maryland, at its Eighty-fifth Annual Session, held at Baltimore, Maryland, April, 1883.

BALTIMORE:

PRESS OF ISAAC FRIEDENWALD,
103 W. Fayette Street.

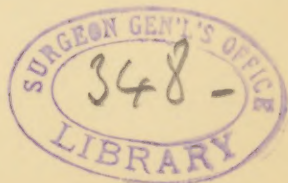
Report of the Section on Obstetrics and Gynaecology.

BY WM. T. HOWARD, M. D.,

Professor of the Diseases of Women and Children in the University of Maryland, etc., etc.

“Science is in her very essence progressive. Freedom from arbitrary dogmas is the condition of her life.”—ROBERT BARNES, M. D.

Just eight years ago, on a similar occasion, I had the honor of making a report to this Faculty. I now propose, in the first place, to consider whether any advance has since been made on the subject of trachelorrhaphy, or Emmet's operation for laceration of the cervix uteri, as a frequent and hitherto unrecognized cause of uterine disease. It is a very remarkable fact, that although Dr. Emmet first recognized this lesion in 1862, in a lady from this very city of Baltimore, practised the operation for its relief for nearly twelve years at the Woman's Hospital in New York city, and particularly directed attention to it in an elaborate essay on the “Surgery of the Cervix,” which was published in the American Journal of Obstetrics, for February, 1869, yet the clarion notes of truth he sounded fell unheeded on the professional ear. For years afterwards there was no mention of Dr. Emmet's name in connection with this lesion in any treatise on gynaecology that I have seen; and it was not until Dr. Emmet published an able paper on this special subject in the same journal for Nov. 1874, that even gynaecologists were aroused to its importance. For three or four years before that date, however, I performed Emmet's operation, as it is now familiarly called the world over (and was the first to do it in this city), publicly in the Hospital of the University of Maryland, and in my private practice, as I had been kindly taught by Dr. Emmet how to do it during my visits to the Woman's Hospital in New York, and yet when I brought the subject before this Faculty in April, 1875 few had even heard of it! When Dr. Emmet's paper aforesaid was under discussion before the Medical Society of the County of New



York, Sept. 28, 1874, Dr. J. Marion Sims said: "There can be no objection, no opposition to the operation. We must accept it as Dr. Emmet has given it to us, for it is perfect—perfect in its methods and perfect in its results. Like all new operations it is likely to be abused, but the time will soon arrive when it will assume its place in the foremost rank of useful improvements." Never was prophecy more completely fulfilled. The operation has been greatly abused, and still more greatly misunderstood and misrepresented, and that, too, by eminent gynæcologists in high positions, who aspire to be leaders in gynæcological thought and practice. Still the operation is a fixed fact in science, and the name of its author will be forever embalmed in the gratitude of the profession, when his detractors will be forgotten. Two years, or a little more, after Dr. Emmet's paper appeared, in consequence of expressions of disappointment on the part of some operators at the results obtained not being such as they anticipated, Dr. Emmet published in the *American Practitioner*, for January, 1877, a second paper on this subject, and pointed out that the failure to obtain success was chiefly due to want of proper care in the preparatory treatment. Many excellent articles on the same subject have since been published in this country; notably one by Dr. Paul F. Mundé (*Am. Jour. Obst.*, January, 1879), on the indications for the operation, accompanied by colored representations of the different varieties of the lesion; and one by Dr. Charles Carroll Lee (*New York Med. Jour.*, Sept. 1881), on "The Proper Limitations of Emmet's Operation for Lacerations of the Cervix Uteri," which was read and discussed at great length before the Medical Society of the County of New York. Now, when you add to all this, Emmet's great work on gynæcology, the 2d ed. of which was published in 1880; the 5th ed. of Thomas' capital *Treatise on the Diseases of Women*, published in 1880; Goodell's admirable *Lessons in Gynæcology*, the 2d ed. published in 1880; and the 3d ed. of Byford's able work on the *Diseases and Accidents Incident to Women*, published in 1881, it seems reasonable to conclude that English-speaking gynæcologists, at all events, would be well informed in regard to the views and practice of American gynæcologists on the subject in hand. And yet what have we seen? During the last few months a long quotation from a work on "The Change of Life," by Dr. Edward John Tilt, of London, has been going the rounds of the journals under the caption, "Tilt on Sims and Emmet," which is not a little remarkable for its misconceptions and misstatements.

“Simpson devised the slitting of the womb for the cure of sterility; but when transplanted into America, his operation, in the hands of Dr. Marion Sims, became one for the cure of most diseases of women. It is difficult for us simple-minded Englishmen to withstand American advocacy of surgical operations. They speak with the prestige of ovariectomy, successful after having been pooch-pooched for a quarter of a century by all the great surgeons of Europe. They dazzle us by prodigious statistics, of which cases given in detail are few, while failures find no place; so when Dr. Marion Sims told us, that in a short time, in one hospital, he had cured 500 women of all sorts of uterine diseases by slitting the cervix up to its union with the body of the womb, the more experienced among us were very much astonished, while the younger men rushed off to the instrument-makers and followed the new light at the slower pace suitable to our placid nature. They soon found, however, that the operation did not fulfil Dr. Marion Sims's promises, that it was sometimes attended by very serious accidents, and then they heard that Dr. Sims's most promising pupil was busy sewing up the wombs he had helped his teacher to divide. Some time ago we heard again from America, that Dr. Emmet had discovered a new operation for the speedy cure of the ordinary run of uterine cases. This new operation was again supported by hundreds of cases, not only of his own, but also of his pupils; cases without definite particulars, and without mention of failures, dangers, or of deaths.” (4th Ed., Preface, p. 8.)

I confess to having read this onslaught upon Drs. Sims and Emmet with equal regret and surprise. It is difficult to understand how Dr. Tilt could deliberately make such statements, which are so completely at variance with the facts in the premises, as I shall now proceed to show.

It is beside the purport of this paper to discuss the subject of hysterectomy of the cervix uteri. But, as preliminary to the *expose* of Dr. Tilt's affirmations in regard to trachelorrhaphy, it becomes necessary to make a brief allusion to it. When Sir James Y. Simpson's operation of incising the os and cervix uteri was transplanted into America, it became materially modified and improved in the hands of Dr. Sims, but he never practised it “for the cure of most diseases of women.” On the contrary, as clearly stated by him in his original and remarkable work,* he practised it solely for the relief of a certain form of stenosis of the cervix uteri as a cause of dysmenorrhœa and sterility. Simpson placed the woman on the left side, and, with the index-finger of one hand, guided his unilateral hysterectomy into the cervical canal a little above the os internum, and springing the blade, incised one side and then the other freely

* Clinical Notes on Uterine Surgery, by J. Marion Sims, M. D. London, 1866.

enough to admit the finger along the track of the cut. Then, to avoid hemorrhage, he completed the operation by introducing into the cervical canal a large camel's-hair pencil saturated with a solution of perchloride of iron, which, however, was often ineffectual. He practised this operation without regard to the peculiarities of the cervix, whether it was curved or straight, and cut away in the dark. Dr. Sims, on the contrary, regarding an automatic machine worked in the dark as hazardous and unsurgical, and preferring the light of day to darkness, introduced his speculum, did his modification of Simpson's operation on the cervix in full view, using scissors and knife to accomplish his object; then placing iron-cotton between the cut surfaces, securely tamponed the vagina to prevent hemorrhage. Hence, the language of Dr. T. Gaillard Thomas (*op. cit.*, p. 618): "It is an axiom that whatever secures clearness of observation conduces to good surgery. Darkness and bad surgery go hand in hand. For this reason Sims's method is far superior to Simpson's. It puts this operation on a level with those practised in other departments of surgery, and lifts it out of the field of uncertainty." But while Simpson, as already stated, did not discriminate, and incised the cervix in the same way whether it was flexed or straight, Sims limited his modification of Simpson's operation strictly to cases of cervical stenosis, in which the intra-vaginal portion of the cervix is normally developed, and in which the anterior and posterior segments of the cervix are symmetrical. For cases of stenosis and flexion of the cervix, in which the intra-vaginal portion is unequally developed, in which the posterior segment is longer than the anterior, associated to a greater or less extent with ante flexion, Dr. Sims devised the operation of antero-posterior incision to obviate the flexure of the cervical canal, and thus obtain a direct and easy passage for the catamenial flow.

But, as Dr. Sims has clearly pointed out:*

"In all these operations on the cervix uteri, whether by Simpson's method or mine, there is great tendency to contract again during the healing process. . . In the bilateral operation, the contraction, as a general rule, amounts to one-third of the original incision at the end of three months, and, at the end of a year, to one-half. . . The posterior section will contract relatively more in the same length of time and under the same circumstances. In the transverse or bilateral incision there is a possibility of cutting so extensively as to produce a

*On the Surgical Treatment of Stenosis of the Cervix Uteri, by J. Marion Sims. Trans. Amer. Gyn. Soc., Vol. III.

permanent deformity of the os by eversion of the lips and protrusion of the cervical mucous membrane. This has often followed the operation when done with the metrotome *caché*, but not when done as I have directed.*

And Graily Hewitt says in regard to incision of the cervix:

"The difficulty in maintaining the aperture is great, and has been mentioned by all who have performed it."*

Every one who has had much experience in these operations knows that all this is true, and that great pains have to be taken to counteract the contracting process. It follows then, that when Dr. Tilt represented Dr. Emmet as busy sewing up the wombs he had helped Dr. Sims to divide, he simply indited the baldest nonsense! †

Returning to the subject of trachelorrhaphy, let us see what Dr. Tilt has to say about that (*op. cit.*, Preface, pages 8 and 9):

"Some time ago we heard again from America, that Dr. Emmet had discovered a new operation for the speedy cure of the ordinary run of uterine cases. . . In America, the womb is to have no peace; if its mouth be surrounded by a rim of ulceration, a delicate and serious operation is to be performed, and however sound the tissues may be, the same operation is recommended should it be possible to detect any trace of a long-healed laceration."

* Diseases of Women, 2d American, from 3d London ed., p. 407.

† I have neither space nor inclination for replying to all the points taken by Dr. Tilt; but I cannot forbear noticing one which strikingly exhibits his careless and exaggerative manner of making assertions. "Dr. Sims told us, that in a short time, in one hospital, he had cured 500 women of all sorts of uterine diseases by slitting the cervix." Now, what did Dr. Sims really say? In his *Uterine Surgery*, p. 147, I find the following: "I cannot now say how many hundreds of times (certainly more than five hundred) the operation of cutting open the os and cervix has been done by *Dr. Emmet and myself* at the Woman's Hospital and in private practice." I do not know what Dr. Tilt means by "a short time." But Dr. Sims was surgeon-in-chief of that hospital from 1854 to 1862, when he went abroad—eight years; and during all that time he had an immense private practice. And the reader will notice that Dr. Sims' statement embraces as well Dr. Emmet's public and private practice. Comment would be superfluous. But why does Dr. Tilt shoot at such long range? His townsman, Dr. Robert Greenhalgh, states (*London Obstet. Trans.*, Vol. VIII, p. 143) that, with his bilateral uterotome, he has incised the cervix nearly 300 times, for mechanical dysmenorrhœa and sterility. And, in this class of cases, the operation is recommended and practised by Dr. Robert Barnes and Dr. Graily Hewitt. Dr. Tilt knows all this. Do these eminent gynecologists belong to the class of "simple-minded Englishmen" of whom Dr. Tilt speaks?

When we behold imperial Science seated on her throne of light, we are charmed with the loveliness of her aspect; but when we sometimes find her chosen prime ministers failing to serve her loyally in the interests of candor and justice, a shade is cast over the picture, obscuring much of its brightness.

And determined that Dr. Emmet shall "have no peace," in an article on Trachelorrhaphy in the *British Medical Journal*, November 25, 1882, Dr. Tilt pursues him again:

"The proposal to treat uterine ulceration, due to a slight cervical fissure, by slitting up the cervix up to the os internum should be scouted; for such cases can be easily cured by nitric acid and nitrate of silver, along with judicious medical treatment, that American gynæcologists seem to despise. To propose a serious and expensive operation for these cases, even when the slight laceration has been thoroughly healed, because epithelioma has sometimes sprung from cicatricial tissue, seems to me very bad practice."

Dr. Tilt has found a congenial ally in Mr. Savage, who, when Dr. W. S. Playfair's paper on trachelorrhaphy was under discussion before the Obstet. Soc. of London, March 1st, 1882, said: *

"The American school profess to believe that every disease (none excluded) incidental to the uterus may be, and generally is the direct consequence of a cervical laceration. The English school disbelieves this on good grounds."

To what class of persons do these eminent English gynæcologists address themselves? Were they to attempt to verify their bald affirmations by the writings of the acknowledged exponents of the American school, they would soon find that they had not even the cobweb texture of *truth* to rest upon. American gynæcologists do *not* slit the cervix up to the os internum to cure a so-called ulceration due to a slight cervical fissure; they do *not* believe that every disease of the uterus is generally the direct consequence of a cervical laceration; and they certainly understand the importance of judicious medical and local treatment as well as the English or any other gynæcologists, anywhere to be found, as their works amply attest to all candid and earnest inquirers after the truth. All new operations are likely to be done unnecessarily before experience has determined the limitations and conditions that justify and enforce their performance, and especially by young surgeons who have a strong and ardent operative tendency. But the ablest American gynæcologists well recognize the conditions and indications which render trachelorrhaphy judicious and proper. Thus, Dr. T. Gaillard Thomas (*op. cit.*, p. 353) says: "If it becomes the rule of practice that all cervical lacerations should be closed without reference to their pathological influences, many women will be exposed to operation without cause and without compensation." And in discussing Dr.

* *Trans. Obstet. Soc.*, London, Vol. XXIV, p. 63.

Lee's paper, Dr. Emmet himself stated "he had found that in the absence of cicatricial tissue by relieving the pelvic cellulitis and the inflamed conditions of the cervix, he had occasion to resort to surgical means in about *one case in ten*, in which he would formerly have operated." Contrast these statements with the bald and bare-faced assertions of Dr. Tilt and Mr. Savage!

But if Dr. Tilt is unjust to American gynæcologists, they should not be unjust to him. In the paper already quoted from (*British Medical Journal*) he says that he "does not deny the influence of laceration in the production of uterine disease," and that he has "been teaching its importance for the last twenty years." Yea, more, he even admits that "trachelorrhaphy is a valuable operation"! Still he "considers that the cases requiring it to be rare." This, however, is easily accounted for. He habitually uses the cylindrical speculum of Ferguson, and thinks that the habitual use of Sims' speculum in uterine surgery "is like using a steam hammer to kill a fly."* American gynæcologists know that Ferguson's speculum often closes the lacerated lips of the cervix and conceals the red and angry cervical mucosa, Dr. Tilt's so-called ulceration; or else flattens out to a greater extent the convex surface of the cervix, and obliterates completely all evidences of the rent. Americans have learned much from the English; the English have much to learn from the Americans.

That favorable results have not been always attained by trachelorrhaphy is nothing more than what we occasionally witness in respect of other operations, alike in general and special surgery, although universally approved and practised. Alternately favorable and unfavorable results from trachelorrhaphy arise from several causes:

1. The conditions and indications for the operation have not been clearly defined, or else disregarded.
2. Proper preparatory treatment has been overlooked or inefficiently conducted.
3. The operation has been, from inexperience or want of dexterity, clumsily done. Some persons never can perform a delicate or serious operation; and whenever they attempt it, they remind one of a bear-dance or elephant-waltz in a travelling menagerie. This is especially true of plastic operations.

* Uterine Therapeutics, 4th ed., p. 31.

What are the indications and contra-indications for trachelorrhaphy?

(a). Certain cervical lacerations seldom, if ever, demand it. From the time he first directed attention to the subject, in February, 1869, down to his latest utterances in September, 1881, Dr. Emmet has uniformly taught that lacerations in the median line, if confined to the cervix, generally heal spontaneously; that they leave scarcely a cicatricial line to mark their course; that it is very rare for any bad effects to remain, and, when they do, it is exceptional, because the recumbent position after labor maintains the raw surfaces in close contact, by the pressure of the vaginal walls, until they become firmly united. If this is not borne in mind, a gynæcologist who habitually uses a base-expanding bivalve speculum, giving a parallel separation of the blades, like that of Albert H. Smith or Goodell, might readily mistake a case of posterior incision of the cervix, after Sims' method, for a parturient laceration and sew it up—a bald blunder that would cause the heart of Dr. Edward John Tilt to rejoice with exceeding gladness.

(b). In all cases in which a unilateral or bilateral parturient laceration demanding trachelorrhaphy is attended by *cellulitis* more or less acute, and *pelvic-peritonitis*, as attested by marked tenderness to pressure and impaired mobility of the uterus, these complications should be removed by suitable treatment before doing the operation. Exceptionally, however, when acute sensibility has subsided and the cervix is ready for operation, a hard and indolent patch of cellular tissue, which has resisted treatment, and which now and then seems to be excited into a condition of acute recrudescence by a bad laceration, may be disregarded and the operation performed, taking care to make as little traction on the uterus as possible.

(c). In all cases in which a bilateral laceration, with or without cystic complication, is attended by ectropion of the cervical mucosa, presenting red and exuberant angry-looking papillæ, and the inevitable copious catarrh, trachelorrhaphy would only conceal the causal condition and hinder the application of suitable remedies. A removal of the catarrhal ectropion is an essential preliminary to trachelorrhaphy. A case is related by Dr. Mary Putnam Jacobi,* of a lady who had marked motor paresis and numbness of the lower extremities, could walk only with difficulty, and incipient myelitis was sus-

pected. The cervix was so much relaxed that it was shaped like a funnel, with the apex at the internal os, and the mucous membrane projected through the external os in loose and hyperæmic folds. Trachelorrhaphy was assented to; but after suitable local treatment, the symptoms so nearly disappeared that the operation was declined, and the patient remained nearly well for more than nine years. So fortunate a result, however, seldom occurs. A large experience has taught me that in a large hyperplastic cervix, with bilateral lacerations, and ectropion of a granular cervical mucosa, often attended by metro- and menorrhagia, and perhaps chronic oöphoritis, removal of these complications is usually only temporary, unless trachelorrhaphy is done; they are very sure to return with dragging at the angles of the rents during locomotion, and a ceaseless cohort of distressing nervous perturbations. If to this state of matters a retroflexion is joined, with the anterior and posterior lips standing at right angles to each other, unless the cervix is restored to its normal status, cure of the retroflexion is difficult if not impossible.

(d). On the other hand, if an extensive lateral or even bilateral laceration has completely healed, without catarrhal ectropion of the cervical mucosa, and there is no hyperplasia of cervix or body, and no symptoms of uterine trouble existing, no necessity exists for operative interference.

(e). It being well established that when the peripheral terminations of nerves, which are more sensitive than their trunks, are compressed by *dense cicatricial tissue*, neuralgias and manifold distressing reflex nervous phenomena may ensue—in all such cases, when the finger determines the existence of great sensitiveness and more or less acute pain in the angles of a cicatrised laceration, even though there be no catarrh of the cervix, trachelorrhaphy alone can be relied upon to give prompt relief. A remarkable case of this kind is recorded by Dr. E. Stansbury Sutton,* of Pittsburg, Pa. A congested and eroded cervix and abundant cervical discharge coincided with a left lateral laceration, in the angle of which nerve filaments were pinched by cicatricial tissue. The lady had long suffered from convulsions; pessaries, local applications, drugs *ad nauseam*, changes of climate, etc., had been fairly tried. Convulsions could be produced at will by slight pressure, with the finger or probe, in the angle of the laceration, while any other point about the cervix could be touched without inducing

* Trans. Amer. Gyn. Soc., vol. V., p. 97.

a paroxysm. A very large amount of cicatricial tissue was removed, and the wound closed with silver sutures. Prompt and permanent recovery ensued. A case is related by Prof. Carl Schroeder,* of deep lateral laceration of the portio vaginalis, extending into the fornix, accompanied by abdominal pains, lassitude, leucorrhœa and debilitating night sweats, so profuse that all the bedclothes were completely saturated every night. Emmet's operation was performed, as the thoracic organs were healthy; the sweats at once diminished, ceased entirely after a few days and did not return.

(f). Trachelorrhaphy, like all other surgical procedures, is likely to succeed in proportion to the reparative force of the patient's constitution. Hence, when the vital forces are *greatly depressed*, and the patient can ill bear the loss of fresh air and moderate exercise, suitable eutrophic agents should be employed, and the general health invigorated before the operation is done. The various forms of *pulmonary phthisis*, *Bright's disease*, &c., when far advanced, offer an insuperable barrier. But when they have not made much progress, and a badly lacerated cervix coexists with chronic congestion of the uterus, with or without retroflexion, and a granular endometrium pours forth profuse leucorrhœal discharge or metrorrhagia—trachelorrhaphy, and a restoration of the uterus to its normal position when displaced, will cause these symptoms to vanish very soon, and thus enable the constitution to rally under judicious management.

PROPHYLACTIC AND PREVENTIVE MEASURES.

Without entering fully into the subject, I may state, *en passant*, there can be no doubt but that many bad lacerations of the cervix are the result of inefficient or of meddlesome midwifery.

In *precipitate labors*, the violence of the uterine contractions may be moderated by chloroform, or a rigid, irritable cervix soothed and relaxed by opiates or hydrate of chloral.

In *slow and tedious labors*, when expulsive muscular energy is hampered by congestion and tumefaction of the cervical tissues, laceration is prone to occur as the head or shoulders are extruded, especially after premature rupture of the membranes. Use the hot vaginal douche, introduce fenestrated forceps with small blades, under chloroform, and, with one or two fingers of the left hand, carefully and slowly draw the anterior lip forward toward the vulva, or press

* *Amer. Jour. Obstet.* vol. XV., p. 540.

the cervix over the head, while, with the right hand, traction is intermittently and judiciously made in the line of the pelvic axis. In all cases and especially in primiparæ, do not *rupture the membranes too soon*, or lash the uterus into fury by the *untimely use of ergot*. When the cervix is more frangible than dilatable, do not incise it, or hurriedly and forcibly dilate by forceps, fingers, or even Barnes's bags, save in the presence of a pressing and more formidable danger.

When there is reason to suspect a cervical laceration, never fail to examine carefully for it; and, if detected, see that antiseptic and detergent vaginal injections are properly used, to obviate septic poisoning, and to promote healing of the cervical rents. The horizontal position should be rigidly enforced for a month, if necessary, to avoid, as far as possible, separation of the lacerated edges during the forward and backward play of the uterus incident to the process of respiration and locomotion.

PRIMARY TRACHELORRHAPHY.

More than twenty years ago an experienced and skillful *accoucheur* mentioned to me the case of a lady who died unexpectedly from post-partum hemorrhage. As the uterus was firmly contracted and there was no laceration or lesion about the labia, perineum, or vagina that he could detect, he was utterly at a loss to account for the fatal hemorrhage; and it was equally inexplicable to me. The poor woman bled to death in spite of a uterus hard and contracted under the energetic use of ergot and ice. Unaccountable deaths, in a devoted spirit of blind credulity, are often presumptuously ascribed to the mysterious mandate of an all-wise but inscrutable Providence! As science advances, many such mysteries vanish. Severed arteries and torn tissues must of necessity bleed when the circulation is active. We now know that many cases of post-partum hemorrhage are due to lacerations of the cervix; and we are indebted to Dr. Ambrose A. Pallen* for the proper treatment. Having been called in consultation to a case of persistent and exhausting post-partum hemorrhage, which had resisted the tampon and styptic sponges, he discovered with the aid of Sims' speculum, a rent on the left posterior side of the cervix extending upwards and backwards a little less than two inches. This was closed by silver sutures, the bleeding instantly ceased, and the patient made a good recovery. In all cases of this kind, in which

* Richmond and Louisville Med. Jour., vol. XVII, p. 547.

the hemorrhage is alarming, this is the safest and most effectual treatment; for while the carbolized styptic tamponade, as in a fierce case recorded by Dr. Lee in his valuable paper, may succeed in stanching the flow of blood, there is danger of producing styptic mechanical thrombosis of the vessels, suppuration and pyæmia; and the blood, not finding free exit from the uterus, may accumulate in its cavity, and thus, in effect, one form of fatal hemorrhage be exchanged for another.

I cannot help thinking, in concluding the subject, that trachelorrhaphy deserves to rank among the most important contributions that have ever been made to gynæcology; and that during the past eight years, the true indications for its performance have been more accurately ascertained and its real value more correctly determined. This will be rendered all the more apparent when we contrast it with the vaunted methods adopted by most English gynæcologists, of melting down an indurated, eroded and lacerated cervix by nitric acid, potassa cum calce, and Paquelin's cautery at a white heat! Dr. Tilt states that "a large cacoplastic cervix with endo-cervicitis, and extensive ulceration" demands for its cure "a year's medical supervision, with occasional active surgical measures," and by these he means intra-cervical incisions, right and left, an inch long and one-third of an inch deep, followed by the application of nitrate of silver, potassa cum calce, iodine, etc.! And he admits that trachelorrhaphy is better for an Englishwoman thus affected, when she resides in India, but not when she resides in England. In other words, tropical influences will not permit her to endure the thorn in her flesh in India, but she can tolerate it while breathing the bracing atmosphere of England, aided by Dr. Tilt's medical supervision and occasional active surgical measures! But trachelorrhaphy is infinitely better for her no matter where she lives, for it restores her cervix to its former normal status in two or three weeks, and sends her on her way rejoicing in the fullness of restored health. Moreover, as epithelioma often arises from local irritations, and a lacerated cervix is constantly exposed to friction during respiration and locomotion, it is reasonable to infer, as, indeed, American experience amply attests, that this dreadful malady not unfrequently finds its points of departure in a cervical laceration.

American gynæcologists are becoming quite hopeful of their English *confreres*, now that Dr. Playfair has taken them in hand. He clearly looks at trachelorrhaphy in the same light in which it shines into American eyes; and if his colleagues will not see the

truth, it is certain that their patients will, when they compare notes with their sisters under Dr. Playfair's care. Indeed, as the debate on Dr. Playfair's trenchant paper plainly shows, others are already falling into line, "at the slower pace suitable to their placid natures," which Dr. Tilt claims to be their national characteristic.

VESICO-VAGINAL AND UTERO-VESICO-VAGINAL FISTULÆ.

Having shown that lacerations of the cervix uteri may often be prevented by proper care, and that, when they do occur in spite of every care and caution, they may often be made to heal, if properly treated soon after accouchement, and thus avoid the necessity of surgical procedures, I now propose to show, by the recital of a few cases, that the same fortunate result may sometimes be attained in the far more formidable and distressing parturient accidents of vesico-vaginal and utero-vesico-vaginal fistulæ. It is not a little strange that this subject has elicited so little attention from gynecological writers.

CASE I. On the 12th of May, 1876, I received a note from our great surgeon, the late Professor N. R. Smith, commencing as follows:

My dear Doctor:—By the letter which I enclose you will understand the character of the case which I commit to you. It is a formidable one of complicated recto-vaginal and uterine fistula; but I am sure you are equal to the emergency.

I give only the essential portion of the letter referred to by Professor Smith:

In the month of October, 1875, Mrs. S., ætat 28, primipara, having arrived at full term of pregnancy, fell into labor of a most difficult nature, and of a duration of forty-eight hours. The waters were discharged at an early period, discovering an undilated os, with a presentation of the head, the position being a right occipito-posterior direction. The dilatation of the os was forcibly made with the fingers, and the forceps were applied above the superior strait. After delivery, which was accomplished by an extraordinary traction, it was discovered that there were several lacerations, viz. of the cervix, of the perineum into the rectum, and of the vagina into the bladder. . . In regard to her tolerance of chloroform, I may state that she inhaled, without much waste, more than twenty-eight fluid ounces, and without an unfavorable symptom.

I found a rent entirely through the anterior lip of the cervix into the bladder, and extending along the anterior vaginal wall nearly up

to the urethra, near which a small portion had healed up. The edges of the fistula, especially near the cervix, were hard and indurated. The utero-vesico-vaginal fistula was successfully closed, at one sitting, by nine silver sutures. Just four weeks afterwards the recto-perineal laceration was also successfully closed at one operation, and the patient returned home entirely cured in nine weeks from the date of the first operation.

In his excellent paper* Dr. Emmet states (p. 118): "I do not hesitate to make the statement that I have never met with a case of vesico-vaginal fistula which could be shown to have resulted from instrumental delivery." However true as a general rule, this case seems clearly an exception, and appears to me to illustrate very forcibly the importance of the precepts I have endeavored to enforce in respect of the measures to be adopted for the prevention of lacerations of the cervix. When, in an occipito-posterior position especially, an undilated os is forcibly dilated with the fingers, and delivery accomplished by the forceps, above the superior strait, by extraordinary traction, the lesions so clearly described by the eminent physician in attendance would seem to be a necessary consequence. No mention is made in the letter to Professor Smith of the after-treatment in the case of this unfortunate lady; but the fact that a small portion of the rent in the anterior vaginal wall near the urethra had already healed when she came under my care, is very suggestive. When viewed in the light of the histories of other cases, soon to be related, it indicates that the reparative forces, if suitably supplemented by appropriate treatment, might have achieved still greater results.

CASE II. May 10, 1880, Mrs. W., primipara, ætat 24, consulted me in a condition of great emaciation and dreadful suffering. After a difficult and prolonged labor, lasting nearly three days, she had been delivered, with the forceps, of a hydrocephalic fetus. The perineum was lacerated nearly to the sphincter ani muscle, and there was a hard, red cicatricial line running from the anterior *cul de sac* of the vagina, along the anterior vaginal wall, nearly to the urethra. This must have represented a laceration into the bladder, or a long vesico-vaginal fistula, as the lady stated that, for a long time, her

* The Necessity for Early Delivery, as demonstrated by the analysis of 161 cases of vesico-vaginal fistula. By Thomas Addis Emmet, M. D. Trans. Amer. Gyn. Soc., Vol. III, p. 114.

urine passed involuntarily into the vagina. She had been treated by hot carbolized vaginal injections.

A severe purulent cystitis existed and great intolerance of urine, inducing frequent and painful micturition. The urine was so intimately mixed with pus and blood as to present little of its characteristic appearance. The anterior and posterior vaginal *cul de sacs* were entirely effaced, and the cervix was removed flush with the vaginal junction, by a destructive ulcerative process. No os uteri externum could be discovered; what remained of the cervix, the cervical stump, so to speak, was covered by mucous membrane, which, however, presented a white glazed appearance, like the cicatrix of an old burn.

Attention was first directed to the *cystitis*. This was chiefly treated by daily injections, into the bladder, of warm water, glycerine and carbolic acid, gr. ij to ξ i, and by administering every night an anodyne suppository of ext. belladonna and ext. opium. At first and for many days not more than an ounce or two of fluid could be tolerated by the bladder, more than that being instantly ejected by involuntary spasmodic contractions of the viscus. The quantity of carbolic acid was gradually increased to, but never exceeded, gr. v to the ξ i. After the cystitis yielded, or nearly so, the general health having greatly improved under cod liver oil, iodide of iron, stimulants and good food, the condition of the uterus claimed attention. When a straight, sharp-pointed bistoury was pushed into the centre of the cervix for about an inch and a quarter, in order to re-establish the os externum and cervical canal, the parenchyma was found to be of a hard, gristly and fibrous nature, from the immoderate hypergenesis of the areolar connective tissue. The cervix was incised bilaterally, and a roll of carbolized glycerole cotton inserted, to keep open the canal. In consequence of the great irritability of her constitution from long suffering and adynamia, violent reaction quickly ensued, the pulse flew up to 160 in the minute, and the temperature to 105° F.

In a few days, under the hypodermic injections of morph. sulph., and the hydrobromate of quinia, for the stomach was too irritable to retain them, the formidable symptoms subsided. The uterus was retroverted and the sound entered for five inches.

After she completely emerged from her perilous condition, the artificial cervical canal having been constantly occupied by the cotton, an intra-uterine galvanic stem 2½ inches long was inserted, to prevent contraction and closure of the canal, to maintain the uterus *in situ naturali*, and to re-establish the catamenia. This was worn for

several months without inducing any unpleasant symptoms, but it frequently fell out and had to be replaced. When she was about to return to her distant home, in consequence of the great difficulty experienced in keeping the galvanic stem in place, I introduced a Chambers split hard rubber intra-uterine stem, which, owing to the spring of its limbs and bulbous end, remained in place. This was worn for some six or eight months, when she returned to the city for further treatment, as her catamenia had not appeared. She had regained her usual weight, and presented a blooming and healthy appearance, in spite of the long-standing amenorrhœa. In removing the stem pessary, it was found that, while its large bulbous end in the uterine cavity could be freely moved about, the cervical canal had so contracted that it was withdrawn with great difficulty. A few days afterwards a sudden and profuse hemorrhage from the uterus occurred, which was arrested by Dr. Frank West, the excellent Resident Physician at the University Sanatorium, by a vaginal tampon. When all danger seemed passed, another and even more severe uterine hemorrhage suddenly occurred, which was nearly fatal. It was arrested by a firm tamponade of the cervical channel with carbolized cotton, which was kept up for about three weeks. By this time the cervical canal, as far as it could be seen, presented quite a healthy appearance, and she returned home. On the 30th December last, being on a short visit to the city, she called at my office, claiming to have been restored to health, with a regular monthly recurrence of her catamenia.

The history of this case proves very clearly that an extensive vesico-vaginal fistula, and a sloughing process involving the entire vaginal portion of the cervix, was completely healed by the use of simple warm carbolized vaginal injections. Had the bladder been, also, treated in the same way, the cystitis would likewise have been promptly cured, as, even when chronic, this treatment was successful.

CASE III. On the 31st August, 1882, a colored woman presented herself at my clinic, at the University of Maryland, with the following note from her very intelligent physician, Dr. Thomas B. Steele :

CAMBRIDGE, DORCHESTER Co., Md., Aug. 28, 1882.

*My Dear Doctor :—*On the morning of the 10th inst. I was sent for in great haste to see Mary C., the bearer of this note, whom I found in an almost exhausted condition, after an ineffectual attempt at parturition of some thirty hours' duration. Her labor, from the first, had been most painfully severe, and ceased from exhaustion. I found that the membranes were ruptured, and the head pre-

senting, well down. I made a very careful attempt to apply my forceps but could not adjust them, as they would immediately slip off the presenting mass. Upon making a more extended examination, I found that I had a case of congenital hydrocephalus to deal with. The mass felt like an immense elastic tumor, with the bones of the head separated very wide apart, and completely filling up the pelvis. She said that she had urinated freely the day before, and the nurse stated that urine had dribbled away from her all night. I proceeded at once to puncture the head, using a pair of common scissors, and let out at least half a gallon of water. In a short time the tumor collapsed, with the bones almost overlapping each other, and with renewed labor pains, delivery was accomplished in a short time without any assistance. The child had been dead for some time, as decomposition was well established. I was congratulating myself upon the successful termination of the case when, a few days afterwards, I found, to my great regret, that the bladder was extensively ruptured. The rupture must have been caused by the immense pressure of the great mass, forced down by the long-continued and violent labor pains, when the bladder was not perfectly emptied.

Upon examination I found a large transverse fistula in the anterior vaginal *cul de sac*, about one-fourth of an inch from the cervix, which would easily admit three fingers, and the posterior vaginal wall was torn off from the cervix, presenting a sulcus into which, also, three fingers could be passed into Douglas' pouch. The cervix was in an ulcerated condition, sloughed off even with the surface, there being no portio vaginalis present, and the cervical canal was occluded. The entire vagina, what was left of it, was irritable, raw and of a fiery redness, and bled from a touch. Under the use of hot vaginal douches containing boracic acid, $\mathfrak{z}$ i to the $\mathfrak{O}$ i, the application of a solution of nitrate of silver, $\mathfrak{D}$ i to $\mathfrak{z}$ i, every other day, and pads of glycerole cotton, under the skilful supervision of my chief of clinic, Dr. W. P. Chunn, improvement was very rapid. In consequence of the extreme sensibility of the parts, the treatment had to be carried out, at first, under the influence of chloroform. On the 29th October, during Dr. Chunn's absence from the city, I directed Dr. W. E. Mitchell, then assistant resident physician, to administer chloroform, that I might make a thorough examination to ascertain whether the patient was ready for an operation for closing the fistula, in the presence of Dr. B. B. Browne and a number of medical students. The chloroform was given with Junker's apparatus, which is constantly employed by Bantock and Thornton at the Samaritan Hospital in London, for administering chloroform and chloromethyl, and is also used by Sir Spencer Wells in all his operations, which had reached,

when his book was published, about 1500 in number.* With this apparatus a patient can be kept thoroughly anæsthetized for an hour and a quarter with only seven drachms of either of these agents, and a due proportion of atmospheric air must be mixed with the vapor with every compression of the bulb. On this occasion only *half a drachm* was used, as was accurately ascertained by looking at the graduated vial, and yet the patient instantly died from paralysis of the heart.†

* *Ovarian and Uterine Tumors*, London Ed., 1882, p. 377.

† There can be no doubt but that chloroform is the most dangerous anæsthetic in common use. Dr. S. D. Gross states (*System of Surgery*, sixth ed., vol. 1, p. 549), that of 117,078 cases in which chloroform was administered, there were 43 deaths, a mortality of 1 to 2723, while of 92,815 cases in which ether was given, only four perished, or 1 to 23,204. Of 11,176 cases in which a mixture of chloroform and ether was employed, only 2 died, the mortality being as 1 to 5588. And yet, America's great surgeon gives chloroform a decided preference over ether, never having had a single death, and having only seen three cases in which he felt any serious alarm for the safety of the patient. Chloroform has certainly many advantages over ether. It is far more pleasant to inhale, produces less bronchial and laryngeal irritation, is much more prompt in action, much more easily maintains anæsthetic influence, and requires a much smaller quantity. A writer (W. Roger Williams, F. R. C. S., in *British Medical Journal*, Feb. 24, 1883), gives six deaths which have come under his immediate notice during ten years of hospital work in London, one from ether and five from chloroform, the number of administrations being about equal, and puts the death-rate of anæsthesia as 1 in 208 inhalations for chloroform, and 1 in 1050 for ether! For many years I have used ether in all capital operations, and have only employed chloroform in short and slight operations and examinations, and have, perhaps with some degree of impatience, listened to arguments in favor of chloroform. It is rather singular, then, that a death should have occurred in my service at the University Hospital. The autopsy made by Dr. W. T. Councilman may throw some light on the subject. "The body of medium size, badly nourished. The vascular system of the venæ cavæ, superior and inferior, engorged with dark fluid blood. The heart of ordinary size, extremely soft and flaccid, the right ventricle dilated and filled with dark fluid blood. The cardiac valves normal. Both lungs free from adhesions and normal in blood-contents and texture. The ureter and pelvis of the left kidney slightly dilated and filled with purulent mucus. The kidney soft in its cortical portion, the remains of several old abscesses. The right kidney slightly changed. In the vesico-vaginal septum, a fistulous opening the size of a quarter." In the *Medical and Surgical Reporter* for October 14, 1882, p. 426, Dr. Lawrence Turnbull, of Philadelphia, gives an abstract of a paper "on the fatal influence of anæsthetics in diseases of the kidneys," and says, that while a considerable number of deaths have occurred after the administration of ether from this cause, there have been very few from chloroform. Dr. Emmet first directed attention to this sub-

No one who did not see this case when it first came under my care, can appreciate the complete change which occurred in the condition of the vagina from the simple treatment employed. The autopsy proved that the vagina had completely regained its healthy state, with the exception of a small fistula in the anterior *cul de sac*, not larger than a quarter of a dollar, which could have easily been closed in a few minutes.

It will be noticed in Dr. Steele's account of the case, that the urine dribbled away during an entire night preceding delivery. This proves a distended bladder, which, Dr. Emmet has shown, retards the progress of labor, and, in a majority of the cases, is an indirect cause of vesico-vaginal fistula, even when there is no hydrocephalic foetus to block the parturient passages. The intense suffering induced by compression of a distended bladder by each uterine contraction hampers the expulsive forces and causes delay in delivery. All obstetricians must have witnessed a gush of urine immediately after the expulsion of the child; and, if the forceps have been used, and a vesico-vaginal fistula subsequently makes its appearance, the circumstance is quickly remembered, and charged to the action of the instrument, while the truth is, that the urine was discharged because pressure on the urethra was removed. In such cases it is sometimes difficult to pass even a flexible catheter, and there is danger of injuring the tissues. The forceps should then be employed at once, as was pointed out by Dr. Emmet (and those able obstetricians, Drs. Albert H. Smith and Fordyce Barker, in the discussion of Dr. Emmet's paper), and the head drawn down below the point of pressure or turned aside. A catheter may then be easily passed, and the vesical reflex pains no longer existing to hinder the normal uterine contractions, delivery may be soon accomplished without further aid from the forceps. I feel well persuaded that a distended bladder is too often the unsuspected cause of an unusually severe and protracted labor. Instead of examining himself, the physician relies upon the statement of the nurse that "she has passed her water freely," when the woman has only a *stillicidium urinæ* from

ject, and states (Gynæcology, 2d ed., p. 476), that he has had, in public and private practice, six deaths to occur after the inhalation of ether in diseases of the kidneys.

In my case nearly every means known to science were tried to resuscitate the patient, inversion of the body, drawing out the tongue, electricity, artificial respiration, etc., but, as stated, death was instantaneous.

a bladder filled to over-repletion. Should the physician get his forceps in readiness and pass the catheter before their application, he finds that as soon as the bladder is relieved, the uterine contractions receive renewed energy, and the labor is soon ended without instrumental interference.

CASE IV.—A lady, ætat 43, was in labor three days with her 13th child. There had been no trouble in her previous labors, and her physician referred the difficulty in this to an occipito-posterior position. Five weeks after her accouchement she was brought to me. I found a transverse vesico-vaginal fistula just behind the symphysis pubis, and extending entirely across the vaginal wall, through which the anterior wall of the bladder protruded in a constricted condition. The vagina was acutely inflamed, the labia much swollen and of a fiery redness, an eczematous condition existed along the inner surfaces of the thighs nearly half way to the knees, and the buttocks were in a similar state. After suitable treatment the fistula was closed with silver sutures; but owing to its great length, and the want of tonicity in the tissues, a few of the sutures cut out, leaving about an inch of the fistula ununited. This was successfully closed in a second operation.

In this case we have a model example of inefficient obstetrics! The large fistula was obviously caused by long pressure of the fœtal head against the soft maternal structures. A tyro in the use of the forceps, with only a moderate knowledge of the mechanism of labor, ought to obviate results so distressing and disastrous. He is not worthy the name of *physician* who cannot use the forceps under such circumstances.

CASE V.—This occurred in a large primiparous negress, referred to me by Dr. Erickson. The labor was severe and protracted, and of long duration, when medical aid was received. Delivery was accomplished with the forceps by Dr. Crozier, in consultation. I found a utero-vesico-vaginal fistula, commencing on the left side of the cervix at the vaginal junction, and extending along the anterior *cul de sac* of the vagina into the bladder, above the vaginal insertion to the right. The fistula presented a sigmoid shape, and a flexible bougie, passed along the urethra into the bladder, could be made to appear to the left of the cervix by pulling the latter forward with a tenaculum.

Figures 1 and 2, drawn from nature by my friend, Prof. Christopher Johnston, represent the course and character of the fistula, *F*—*a* in Fig. 1. In Fig. 2 the woman is represented in the genu-pectoral

position, with Bozeman's spring and self-retaining speculum in position, and a flexible catheter passed along the urethra into the bladder, traversing the fistula, and appearing through the lacerated cervix on the left side.

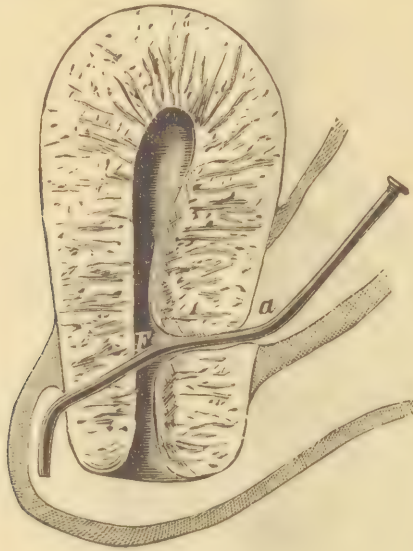


FIG. 1.

Eleven silver sutures were used in closing the fistula and lacerated cervix, which was successfully done at one sitting. Not a drop of urine passed into the vagina after the operation. I found it no easy task to pass the needles above the vaginal insertion on the right side, so as to include the bottom of the fistula. The sutures were removed on the eleventh day. During all this time a celluloid catheter was worn without removal, as there were no signs of vesical irritation; and, when removed, it presented a somewhat sigmoid shape, as represented in Fig. 3, strikingly resembling Sims' well-known sigmoid catheter.* The catheter was straight when first introduced. The warmth of the bladder rendered it so flexible that it readily assumed the shape imparted to it by the vesical walls, thus attesting the versa-

*The engraver should have curved the urethral end of the catheter a little more downwards, thus presenting a still more striking resemblance to Sims' sigmoid catheter.

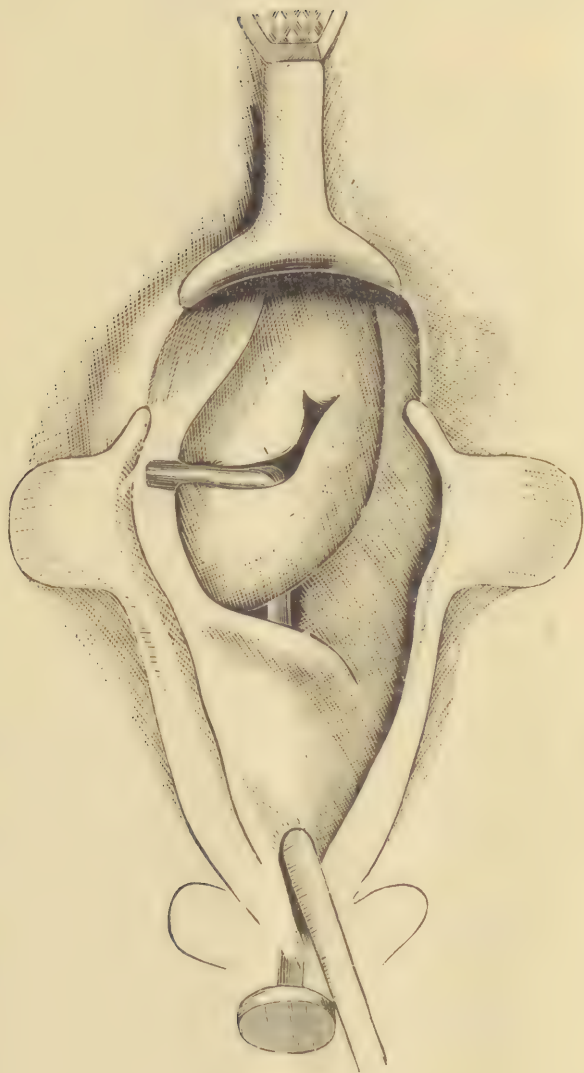


FIG. 2.



FIG. 3.

tile genius of the world's most ingenious and most original gynaecological surgeon in fashioning an instrument for conducting urine from the bladder as soon as the ureters convey it into that organ. Unless great care and skill are exercised in so shaping Sims' catheter as to prevent the vesical end from resting on the fundus of the bladder, great vesical irritation, bloody urine, and violent spasmodic efforts to dislodge it sometimes ensue, and thus defeat the operation, as actually happened in one of my cases. From this cause, the catheter not being properly balanced in the urethra and bladder, Dr. Emmet has known perforation of the bladder and death to result in one instance. It occurred to me that a celluloid catheter would fulfil every indication, and the result happily verified the conception.

In reviewing these cases it does not appear that, with the exception of the first case, the fistula in the other cases resulted from the use of the forceps. Dr. Emmet, it will be remembered, has never seen a case of vesico-vaginal fistula which could be referred to instrumental delivery; but, on the contrary, all of his tabulated 161 cases resulted from delay in delivery after impaction had taken place, causing an obliteration, by pressure, of the circulation through the soft parts of the mother. Indeed, he goes so far as to claim that half an hour of this obstruction may cause the most extensive loss from sloughing. So long as the head recedes during the absence of pains, although the latter may be violent, and intermittently impel it against the soft tissues of the mother, there is little danger; this begins *when impaction occurs*. He lays down the fundamental rule, as the result of his large experience, that although she may not remain undelivered until that time, the latest point at which it is

safe to leave a woman undelivered is, *when the head ceases to recede after a pain*. Dr. Fordyce Barker, however, considers this rule unsafe and uncertain, as, in many cases of normal labor, the head ceases to recede in the intervals of pain; and his rule is, to apply the forceps *as soon as the head ceases to advance*, while uterine contractions are sufficient to accomplish delivery, if this is to be effected in a natural manner. Dr. Emmet's rule and Dr. Barker's are nearly in harmony; for practically, when the head ceases to recede, it almost invariably ceases to advance.

Another point of the greatest importance brought out by an analysis of Dr. Emmet's 161 cases of vesico-vaginal fistula is, that in *seventy of the cases*, the average time after delivery before separation of the slough took place was *nearly ten days*. In some cases the delay was much greater, and in others much less, while in fifty women the urine escaped immediately on the termination of the labor. But this fact does not of necessity prove that a slough had formed, which became loosened only as the child was extruded, as Dr. Emmet seems to believe; because the discharge of urine, at that moment, may only have indicated that pressure on the urethra was removed by the birth of the child. At all events, in *seventy cases* the average time of separation of the slough was *ten days*, and that shows that, in those cases, immediate death to the parts did not occur. The fistula in such cases is evidently the result of inflammation caused by detention of the head, which, if neglected, ends in ulceration and sloughing.

Now, if while these changes are going on, the patient were carefully examined on a table, in a good light, with Sims' speculum, the mischief might certainly be detected and promptly treated. In any case, then, of severe and protracted labor in which we have reason to suspect that impaction of the head has laid the foundation for the initiation of inflammatory processes, this examination should be made. And above all, when, by the touch, the vagina is found to be hot, tumid, and tender upon pressure, and the discharges are muco-purulent, or it may be fetid, and shreds of mucous membrane apparent, ought a thorough exploration to be made. The histories of some of the cases related prove how much can be done by a simple treatment in furthering the restorative process when large destruction of tissues has already occurred. The bladder should, in its paralyzed condition, be protected from the strain of over-distension by the insertion of a soft and flexible or celluloid catheter, which would readily adapt

itself to its requirements. Dr. Emmet has seen two cases of vesico-vaginal fistula, into which he could pass his finger, heal up within a month after their occurrence, which took place after labor, simply because the edges were kept clean; and Dr. Byford (*op. cit.* p. 81) believes that fifty per cent. of the vesico-vaginal fistulæ which now occur might be obviated by proper prophylactic treatment.

Lastly, I would particularly insist upon the great importance of preparatory treatment, before attempting the operation for curing a vesico-vaginal fistula. The parts, as far as possible, should be made to present a natural appearance as to color and consistency, or the sutures will cut out, no matter how aptly and neatly the edges of the fistula may be brought together.

DR. BERNARD B. BROWNE'S CASE.

This interesting case was read before the Section of Obstetrics and Gynæcology on the 27th of October last.

On October 18th, 1881, I saw, with Dr. John Morris, Mrs. M., aged 24, who had sustained a vesico-vaginal fistula about three years previously in her first confinement. She had been in labor nearly three days, and was finally delivered by craniotomy. She was attended in her confinement by two physicians, who subsequently endeavored to heal up the fistula by cauterizing the surfaces with nitrate of silver. She soon became pregnant, however, and no further treatment was pursued. During the whole period of her pregnancy she passed all her urine through the fistula into the vagina, as she had done before her pregnancy, and continued to do so afterwards. She came under Dr. Morris's care about one month previous to the time I saw her with him. She was then in the usual condition of such patients; the vagina and vulva were excoriated and coated with the phosphatic deposits from the urine.

Upon examination a deep laceration of the cervix was found on the right side, extending down to the vaginal junction, and a line of cicatricial tissue extending along the vaginal surface of the bladder, indicating that the primary laceration extended from the cervix down to the site of the fistula, which was about three-fourths of an inch from the juncture of the bladder and urethra. The tissues were hard and indurated; but after preparatory treatment of hot water, nitrate of silver and stretching, they were restored sufficiently to admit of the operation. Four silver wire sutures were necessary to close the fistula. On the 10th day the sutures were removed and the union was perfect. There has never been any leakage since.

In looking over Dr. Emmet's cases I could find none in which the woman had given birth to a child while suffering from vesico-vaginal fistula.

AXIS-TRACTION FORCEPS.*

Before discussing the action of this forceps, let us consider the mode of action of the forceps in common use. No matter how much they may differ in construction, the same principles underlie and govern the action of all.

1. *Traction.* The forceps chiefly acts as a *tractor*. This is the great and primary use of the instrument by which delivery is accomplished. This, however, is supplemented by other factors which claim attention.

2. *Compression.* Traction cannot, indeed, be made without exercising some degree of compression of the head. The amount of pressure is estimated by Delore to nearly equal half the amount of force exerted in traction. In difficult cases, requiring the exercise of a very considerable energy, this estimate, probably, is not too high. This force, however, should always be employed with caution and reserve, and should usually be only sufficient to prevent slipping of the blades from the fetal head; for while, if the forceps is applied over the parietal bosses there is no great danger to the child from a well-regulated pressure, it is yet obvious that diminution of the cranium in one direction is usually compensated by increase in another.

It is highly important to know to what extent the fetal head can be safely compressed. This must, of course, be a variable factor. It will depend, to a considerable degree, upon the size of the head and its ossification, and to the manner in which the compressing force is applied. If the greater transverse (the inter-parietal) diameter of the head and the places usually grasped by the forceps be estimated at from $3\frac{1}{2}$ to $4\frac{1}{2}$ inches, these dimensions, according to Lazarewitsch,† may be diminished from $\frac{1}{4}$ to $\frac{3}{8}$ inches without endangering the life of the fetus. And, certainly, this does not seem a dangerous degree of pressure, when we consider the maximum amount of plasticity

* To avoid the tedium of frequent references, I will state that I am largely indebted to Prof. Tarnier's paper, *Perfectionnement dans la construction et dans l'application du Forceps*, Trans. Inter. Congress, London, 1881, Vol. IV., p. 239, and to Prof. A. R. Simpson's paper on *Axis-Traction Forceps*, pamphlet copy, 1880, in the presentation of my remarks on this subject; also, to the courtesy and kindness of Prof. Tarnier himself, for instructions on the manikin at *La Maternité*, in Paris, in August, 1881.

† Professor of Clinical Midwifery and Diseases of Women and Director of the Gynecological Clinique, in Kharkoff, Russia. See Trans. Internat. Congress, London, Vol. IV., p. 244.

compatible with foetal life, as seen in primiparous labors of long duration. It is now well determined that the vault of the foetal cranium will sustain an amount of compression for several hours without danger to life, while the base of the cranium cannot be safely compressed for more than five minutes (Martin, of Berlin).

3. *Dynamic action.* This influence is often observed as ancillary to the use of the forceps, when, in lingering and tedious labors, the head is drawn down in the grasp of the instrument, the expulsive parturient forces receive renewed energy and essentially aid the process of delivery. Indeed, it often happens that the pains become so active that the further use of forceps becomes unnecessary, and it may be safely withdrawn that delivery may be completed by the unaided efforts of nature.

4. *Leverage.* Until of late years a large majority of accoucheurs have made use of a pendulum or alternate lateral lever movement—a swaying movement from side to side—to aid in advancing the head when it fails to descend under simple traction. That extractive force is materially increased by this movement is, to my mind, very clear. In long labors, in consequence of interruption, by pressure, of the circulation, the soft parts become so œdematous, in some instances, that a sort of puffy cap envelopes the head. I have often found the pendulum movement in such cases of great value, by pressing out the exuded serum from the œdematous vaginal tissues and thus removing the obstruction. It requires less extractive energy than by pulling steadily downwards, to remove the obstacle to the advance of the head.

It must be confessed, however, that unless due care be exercised, this swaying movement may endanger the soft maternal structures and initiate a train of grave lesions. Hence it follows that if forceps can be devised which, while greatly enhancing extractive force, avoids the exercise of such pendulum action, a great boon will be bestowed upon the science and art of obstetrics.

The forceps so long in general use have rendered services so great and numerous that one involuntarily shrinks from depreciating their value. Still, if we study in a careful and unbiassed manner their mode of action, it will be seen that they are not above reproach. It will appear that when the foetal head is at or above the brim of the pelvis, traction made upon the handles of the instrument is far from being made in the line of the pelvic axis, and that injurious pressure is exerted upon the soft parts against the pelvic walls; and also

that the extractive force is applied so far from the centre of the foetal head that much of its energy is lost and misdirected.

Let us study the action of the ordinary forceps in the diagram here shown on the screen,* constructed by Prof. A. R. Simpson, and partly borrowed from Prof. Hubert, of Louvain.

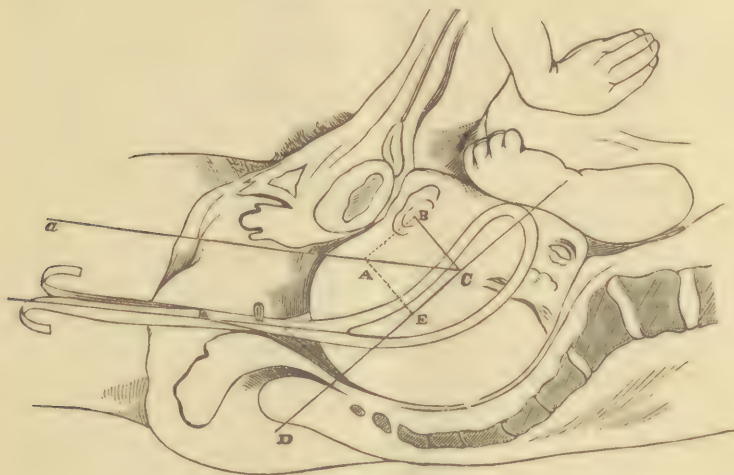


FIG. 4.

Levret forceps applied to a foetal head in the pelvis. The parallelogram of forces, $A B C E$, illustrates the amount of force lost ($=$ difference between $C A$ and $C E$), and the amount misdirected ($= C B$), when traction is made with straight handles.

When delivery is accomplished by the natural expulsive forces, the head C is driven downward in the direction of the line $C D$. But it is obvious that traction applied through the hooks a must of necessity act in the line $a A C$, which runs parallel to the handles. Hence only a part of the extractive force will be utilized in drawing the head along the axis of the brim. Now, in resolving the extractive force into its component factors, we perceive that these are constituted by the lines $C E$ and $C B$. Of these, in a case where a force $A C$ of the weight of 50 lbs. meets the line of descent $C D$ at an angle of 40° , the actual available component would be only $38\frac{1}{2}$ lbs. But whilst a force of only $38\frac{1}{2}$ lbs. is acting in a useful direction, a force of 32 lbs. is being exerted in a vicious

*The subject was illustrated by stereopticon views thrown on a screen.

direction, crowding the head against the symphysis pubis in the direction, and to the extent indicated by the line *C B*. And this injurious pressure must increase in a ratio exactly equal to the degree of divergence of the actual line of traction from the axis of the pelvis. It is obvious that if traction be made directly in the line of the axis, all the force employed would be utilized, and that there would be no detrimental pressure on the walls of the parturient passage. But just as the line of vicious traction diverges the available force diminishes and the mischievous pressure increases.

TARNIER'S FORCEPS.

In order to correct and to obviate this demonstrated defect in the action of the forceps in ordinary use, Prof. Tarnier devised his *Axis-Traction Forceps*, and founded it on unassailable principles. Indeed, in concluding the discussion on his forceps at the International Congress, he exclaimed, as well he might :

“ It results from this discussion that the principles I have formulated as regulating the construction of the forceps remain intact ; no one has even attacked them. As regards the method of application, differences may exist. . . . If my forceps be too bulky for some persons, nothing is easier than to make it smaller, and its blades thinner ; but I should not, myself, consider this any advantage.”

The following are the principles to which Prof. Tarnier refers :

1. The forceps draws directly in the line of the axis of the pelvis.
2. It applies traction as nearly as possible to the centre of the head.
3. The head, when seized by the forceps, has the same mobility which it has in natural accouchement, either to bend or turn aside, or pivot around an imaginary axis of the pelvis.
4. The handles act as an automatic needle or indicator, which points out, every instant, to the operator the movement of the fetal head, and which guides him in the direction in which traction ought to be made.

It will thus be seen that Tarnier's forceps realizes and unites these four principles in the same instrument. It constitutes the only successful effort, where all others have failed, to supplement the natural expulsive forces in the direction of the axis of the superior strait, without loss of power, and with safety to the soft parts. Physicians who have only used the ordinary forceps have no adequate conception of the facility with which delivery can be accomplished with Tarnier's instrument, when the head is at or above the brim, or occupies the upper two inches of the pelvic canal.

When first introduced to the profession in this country by Prof. Fordyce Barker,* Tarnier's forceps had a perineal curve, as will be seen in Fig. 5. This was intended to protect the perineum when traction is made in the axis of the pelvis.



FIG. 5.

I am indebted to the courtesy of Messrs. Wm. Wood & Co. for the use of the electrotype, Fig. 5, taken from Dr. Barker's paper.

Tarnier has now given up the perineal curve for the following reasons :

1. In direct applications it is easier for physicians to apply the forceps with the ordinary curve to which they are accustomed, than the forceps with the perineal curve.

2. In oblique applications, the convexity of the perineal curve comes into contact with one of the ischio-pubic rami and causes a deviation of the handle of the instrument, whose action then becomes defective, and tractions made upon the forceps are not directed according to the median plane of the body. Thus, in a right occipito-posterior position, the convexity of the curve strikes against the right ischio-pubic rami, and the handle of the instrument deviates towards the left thigh.

3. With forceps having the ordinary curve, when we wish to impress upon the fetal head a movement of rotation around the imaginary axis of the pelvic cavity, the handles of the instrument must describe externally an arc of a circle.

For these reasons Tarnier has abandoned the perineal curve of the blades of the forceps as seen in Fig. 5, and returned to those of the

* Amer. Jour. Obstet., Vol. XI, p. 9.

curve of Levret, as seen in Fig. 6. The perineal curve is carried back upon the stem with the movable handle, and traction can be made according to the axis of the pelvis, as in his preceding models.

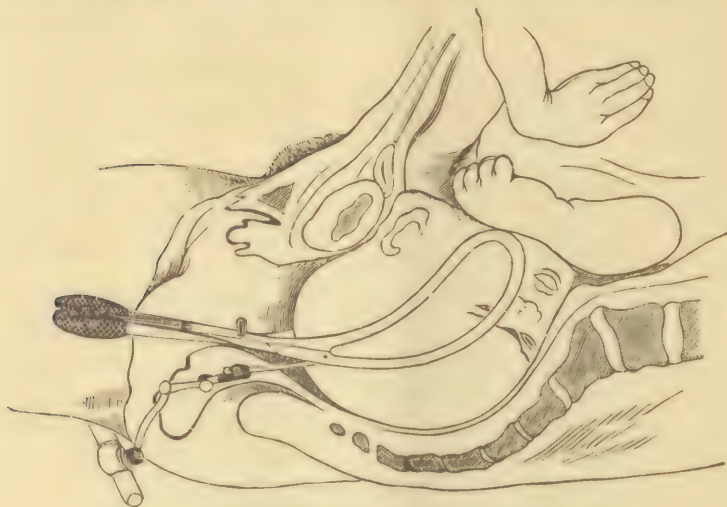


FIG. 6.

It is well known that in unassisted occipito-posterior positions, the occiput tends, in many if not in a majority of the cases, to undergo the usual movement of rotation, and, at last, to emerge under the pubic arch. In difficult cases of this character, however, the issue is not usually so fortunate, and the perineum must be so much stretched as greatly to endanger its integrity. If the ordinary forceps be applied, an exceptionally skilful operator may succeed in rotating the occiput under the symphysis and delivering a living child, as did the late Prof. George T. Elliot, in a right occipito-posterior position.* But, as a rule, this operation, with the ordinary forceps, is impossible, difficult or dangerous, because the blades tend to describe a cone whose base responds to their extremity. Hence the language of Barnes: †

“*Extraction, then, simply, without troubling yourselves about rotation, is all that is necessary. If Nature prefer or insist upon rotation, your business is to consent. As the head advances, the occiput may come forward, and you will feel the handles of the forceps turn upon their axis. But in a large proportion*

* *Obstetric Clinic*, p. 299.

† *Obstetric Operations*, 2d English edition, p. 62.

of cases, Nature will not insist upon bringing the occiput forward, and here again your part is that of a minister of Nature. The forehead will emerge under the pubes, the cranium will sweep the sacrum and perineum. As the blades of the forceps preserve their original position, the handles will turn with the head. It is labor lost, it is encumbering Nature with superfluous help, it is a sin against that most excellent maxim '*ne quid nimis*,' to attempt to promote this turn by twisting with the forceps."

See, also, what Prof. Wm. T. Lusk* says in regard to the use of the forceps in occipito-posterior positions:

"So long as the occiput looks to the rear, it is the rule in midwifery practice to refrain from the use of the forceps, which, of necessity, *prevents forward rotation from taking place*. Attempts to rotate the occiput around to the symphysis *by instrumental means are rarely successful*."

But when Tarnier's forceps is used, the occiput is left at liberty to rotate forward as in natural labor; because the artificial rotation of the head does not cause "the handles of the forceps to turn upon their axis," since they are left free to describe without an arc of a circle, while the blades pivot in the pelvis, as traction is made upon the transverse handle. When, in an oblique right occipito-posterior position, we wish to effect this artificial forward rotation of the occiput, while traction is made upon the transverse handle with the left hand, with a finger of the right hand push the left handle of the forceps over towards the left thigh in such a manner as to make the handles describe the arc of a circle. In order to do this, the head should be previously lowered, so that it may be easily flexed; and often it is only when it appears at the vulva that this artificial rotation can be effected.

It is still an open question whether the Tarnier forceps should be used when the fetal head is at the inferior strait, or that, when the head has been brought down from the superior strait to the floor of the perineum, Tarnier's should be taken off and one of the familiar forceps, as Simpson's, substituted. Without great care, it is alleged, the vagina may be cut into by the traction rods. I have not found it necessary to remove Tarnier's forceps and apply others; nor has Prof. A. R. Simpson. In speaking of the forceps of Sir James Y. Simpson, with traction rods attached, after Tarnier, Prof. A. R. Simpson stated at the London International Congress:

"He had employed, or seen them employed, in all sorts of cases at the brim, in the cavity, and on the perineum, with the head in all the various positions, and always with results entirely satisfactory."

* Science and Art of Midwifery, p. 252.

That Tarnier's forceps has great advantages over all others in delivering at or above the pelvic brim, or the two upper inches of the pelvic cavity, has, it seems to me, been demonstrated. But I have in two instances, in consultation, succeeded in accomplishing delivery at the inferior strait by their use; one, a right oblique occipito-posterior position, and the other, a brow-face to the left, when two experienced and skilful accoucheurs, as well as myself, had failed with Hodges and Simpson's forceps. If properly handled, Tarnier's forceps does not involve greater danger to either vagina or perineum than the ordinary forceps. As a very general rule, however, the exception being an extreme necessity for speedy delivery, it is good practice to remove the forceps of any kind when the advancing head bulges out the perineum and begins to appear between the labia; and especially ought this to be done when the perineum is still rigid. Let the young physician, especially, ponder well Dr. Fordyce Barker's words: "The operation should be performed slowly. I am never less than a half-hour in bringing the head down from the superior strait, and in some instances I have been a full hour."

And, unless there should be some urgent reason for speedy delivery, eclampsia, profuse hemorrhage, etc., the same deliberation ought to prevail in all primiparous cases, at all events, even when the head is well down in the inferior strait. In such cases, all experienced obstetricians must have seen the head advance so slowly, under even strong expulsive pains, as scarcely to make perceptible progress. To expedite delivery by the forceps under such circumstances, to gain time, or to make a deceptive impression upon ignorant bystanders of superior skill, is uselessly to expose the vagina and perineum to the hazard of serious lesions. The result, however, is only indirectly due to the forceps; for, in such a case, it would as certainly occur in a precipitate labor in a vigorous primipara, as in a recent case, before I reached the house. Unless the soft maternal structures are in a suitable condition to admit the passage of the foetal head, lacerations will often occur if delivery is effected speedily, whether by the forceps or the unaided natural forces.

OBJECTIONS TO TARNIER'S FORCEPS.

The great length of this report forbids my making a full reply to all the objections that are usually urged to the axis-traction forceps. I will only consider a few.

1. *Its complexity.* That it is more complicated than the ordinary forceps is obvious at a glance. But this is a very small matter when balanced against its great advantages, and is soon overcome by a little practice. When it was objected to the style of the burly dictator of English literature, Dr. Samuel Johnson, that he used too many hard words, he replied, "Hard words are only hard to those who do not understand them." Only those who have not familiarized themselves with the use of Tarnier's forceps consider it so very complicated. The instrument is as easy to apply and adjust as any other forceps. If any of you, in this audience of two or three hundred doctors, think differently, suppose that one or more come forward and let us test it on this manikin. I regret that no one accepts the invitation.

When I first read Dr. Barker's paper aforesaid, I must confess that Tarnier's instrument seemed to me complicated and cumbrous. But when I saw the instrument, and had studied the mechanism of its action, it occurred to me that by greatly shortening the application handles, which are never used in traction, and by substituting the key arrangement introduced by Prof. Lusk, for fastening the traction rods, instead of the socket-joint used by Tarnier, the instrument would be simplified, and yet all of its essential features retained. The instrument, thus modified, is before you. It has the blades of the late Prof. David D. Davis, of the University of London, whose forceps was preferred by the late Prof. Charles D. Meigs, of the Jefferson Medical College, to all others. Soon after the forceps was made for me by Tiemann & Co., of New York, I was called in consultation, in February, 1881, by my friend Dr. P. C. Williams, in the case of a primipara, above thirty years of age. The head presented high in the pelvis in the left occipito-anterior position, rotation not having taken place. He had twice failed to deliver with Hodges' forceps, and I failed with Simpson's. I then used this modification of Tarnier's forceps, and was equally astonished and delighted at the ease and rapidity with which delivery was accomplished.

I then appreciated, however, the reason which induced Tarnier to abandon the perineal curve of the blades of his first forceps for the blades of Levret's forceps; for in effecting rotation, the bold circular sweep of the former impinged upon the left ischio-pubic rami, producing a marked deviation of the handles. Hence I now prefer the forceps represented in Fig. 6, with a considerable portion of the application handles removed, but retaining Tarnier's socket-joint for fastening the traction rods, which a more enlarged experience has

proved to be superior to the device of Dr. Lusk, being stronger and more easily adjusted. It will readily be seen that this simplifies Tarnier's forceps very much, and when the traction rods are folded to the shanks it may be used like the ordinary forceps, so that when, in any case, the head is drawn down from at or above the brim, there is no necessity for removing this forceps to be replaced by the ordinary instrument, as some prefer to do, to extract the head over the floor of the pelvis; for the stem fastening the traction rods can be removed in a moment, the latter folded along the shanks, and delivery completed.

2. *The compressing or fixation screw.* This is considered by the opponents of Tarnier's forceps an element of great danger, because, if the fetal head is not compressed sufficiently, the blades will slip from it, and if it is compressed enough to prevent this, the life of the foetus is endangered by continuous pressure, which should always, they say, be under the perceptible control of an intelligent hand. That the head may be dangerously compressed with the fixation screw by an unskilful operator is obvious; but it is equally obvious that the slow and continued compression made by the screw is less hurtful than the dangerous and sudden compression of the head effected by the handles of the ordinary forceps to prevent slipping of the blades, when the power of sensation is diminished by the muscular energy expended in compression and in producing traction. Any forceps may produce mischief in the hands of inexperienced and unskilful operators. But the danger so much dreaded from the cross-screw seems to me to be wholly imaginary. It is indeed a misnomer to call it a "*compressing*" screw. When the blades are properly adjusted to the foetal head, the operator approximates and presses the application-handles with his hand, only so much as, in his judgment, will effectually prevent slipping of the blades off the head, and then turns the screw until it is arrested at that degree of pressure. In other words, the screw accurately regulates, so to speak, the amount of pressure previously determined by the sentient hand as being safe and sufficient, and thus renders any further pressure simply impossible. Hence, it would be more correctly termed the *regulating* screw. In compressing the blades with the hands, in making traction with the forceps in ordinary use, there is a constant tendency to increase the amount of pressure in a direct ratio to the amount of force required to effect traction. The accoucheur instinctively increases the compressing force in a direct ratio to the resistance to be overcome.

To obviate the evils arising from such sudden and violent compression of the foetal head, that able obstetrician, the late Professor G. T. Elliot, attached to his modification of Sir James Y. Simpson's forceps an ingenious contrivance.

"I am convinced that the addition of a sliding pivot to the handles of forceps is invaluable in graduating this compression and in *preventing its risks*. With its aid, the exact amount of approximation of the blades desired can be *decided upon before the tractions are commenced*, and the risks of pressure, in the excitement and labor of the delivery, dismissed from the mind." (*Op. cit.* p. 301.)

When, in imitation of nature's method, the accoucheur ceases to make traction on the ordinary forceps during the intervals of rest between the pains, he intermits compression; and so also, in using Tarnier's instrument, the grip of the regulating screw is correspondingly relaxed. If, however, the amount of pressure secured by this screw in Tarnier's forceps be so much dreaded, it need not be used at all; the compression deemed necessary to prevent slipping of the blades may be made with one hand, while, with the other, traction is accomplished by pulling on the transverse bar attached to the traction rods.

But why reason further about a matter which has already been settled by experiment and experience? Budin, Tarnier's former pupil, stated, in the discussion at the International Congress (and Prof. Tarnier repeated the statement to me subsequently in Paris), that Tarnier has allowed the foetal head to remain compressed after extraction, for ten or twelve minutes, between the blades of the forceps, without any bad result; and Ducet has demonstrated that, although rapid compression of the brain is dangerous, slow and continuous compression is much less so.* And so also Barnes states:

"It is an important fact that in many cases the child survives, although its head has undergone very great compression and moulding. . . . If this force be applied *gradually and continuously* [the italics are his], a much greater extent of moulding, with less injury to the child, may be obtained than what Baude-locque thought possible."†

3. Tarnier's forceps is *unnecessary*. It is urged that this forceps is unnecessary, because, with the forceps in ordinary use, delivery can be accomplished in all cases in which we can reasonably expect to effect it by any forceps. That this is true in the majority of cases is not denied; but there are many other cases in which it cannot be done

* Trans. Inter. Congress, Vol. IV, p. 268.

† *Op. cit.*, p. 21.

even by able and experienced accoucheurs, a few instances of which have already been mentioned. As has been already proved, in using the familiar forceps when the head is at or above the brim of the pelvis, the pelvic curve of the blades has a constant tendency to make injurious pressure upon the maternal tissues, to crowd and crush the head against the symphysis pubis, and the amount of force uselessly expended in making traction is in a direct ratio to the degree of divergence from the line of the pelvic axis. To obviate this inevitable tendency of the ordinary forceps, it is usual to press with the left hand backward on the lock, while traction is made by the other on the handles downward, forward, and lastly, upward; so that while both hands describe a curve, that made by the right is much the greater. But this requires rare manipulative skill, and almost always great physical strength and exertion, which often produce painful stiffness and soreness in the muscles of the arms and back for some days. There are few of us, doubtless, who have not vivid recollections of similar experiences; while those who have used Tarnier's forceps must attest that delivery can usually be accomplished with ease and certainty, and without the slightest injury by the instrument, either to mother or child. In using Tarnier's forceps we pull with both hands as nearly as possible in the true line of the pelvic axis, and utilize all the force, if needed, which the operator possesses. And as the application handles rise upwards, they infallibly indicate the line along which the head is passing, without useless expenditure of tractive energy, or misapplied force in a vicious direction to the detriment of the maternal soft structures.

TARNIER'S CLAIM TO ORIGINALITY.

Some accoucheurs, not satisfied with decrying the value of Tarnier's forceps, have alleged that he was anticipated in its essential principles by Hermann of Berne (1844), and by Hubert of Louvain (1860), whose labors he has appropriated without due acknowledgment!

As unfounded statements pass current for truth, when often repeated without contradiction, let us see what Tarnier himself has to say in regard to this allegation, in his paper before the International Medical Congress:

“Hermann of Berne occupies himself only with the bad direction of the traction, and to remedy that evil he has contrived a pair of forceps, the curvature

of which is so singular that no one would ever dream of using them in practice ; and, even by the admission of the inventor, the tractions made upon the handle of the instrument would be absolutely defective, and worse directed than with ordinary forceps. Hermann has, also, completed his forceps by adding a supplementary piece, which he employs in the following manner : Whilst, with one of his hands, he draws directly upon the handle of the forceps, he holds the supplementary piece with the other hand, adjusts it above the articulation, and exercises at this point an energetic pressure directed downward. When the foetal head appears in the vulva, he changes the place of the supplementary piece, adjusts it below the instrument at the beginning of the blades, and profits by this to draw in a variable direction with one hand, while the other hand draws directly upon the handle of the forceps. In a word, Hermann with his forceps does almost what an operator would do who would draw directly upon the handles of the ordinary forceps whilst an assistant would draw downward and more or less forward, with the aid of a string (fillet) placed across the articulation, as has been advised by some accoucheurs, as you are aware.

It is true, justice should be accorded to the originality of the accoucheur of Berne, but I am astonished that Professor Stoltz and Dr. Saenger should say that my forceps resembles Hermann's, for the two instruments differ absolutely in their form and mode of action.

Happier than Hermann, Hubert of Louvain, after clearly demonstrating the bad direction of the tractions made by ordinary forceps, has contrived two forceps which draw directly within the axis of the pelvis. He has even advised to apply the force as near as possible to the vulva, by seizing the forceps near its articulation, in order to shorten the lever, at the end of which one operates ; but he has not gone farther.

Doctor Chassagny, of Lyon, has shown the advantage which he has obtained by applying the force near the centre of the head ; but he has misunderstood the considerable importance of the tractions made according to the axis of the pelvis.

I will not pursue the subject of the qualities and defects of the forceps contrived by Hubert of Louvain and Dr. Chassagny, because I have already analyzed them in a brochure published in 1877 ; but I am glad to proclaim here in the midst of the International Congress, the great merit which attaches to their works."

Is this the language of an author who decks himself out in filched plumage ? So far from appropriating the labors of Hermann and of Hubert without acknowledgment, he gives a lucid description of their methods, combats them, and contrasts them with his own, but he makes no effort to dwarf their achievements. On the contrary, he exults in attesting their great merits before the world's greatest medical congress.

The history of medicine is full of instances in which great and almost identical discoveries have been made by different workers acting independently of each other ; and, in respect of the matter in

hand, it may certainly be said that the labors of others fell like seed upon rocks and stony places that bore no fruit, and it was reserved for the illustrious *Chirurgien en Chef de la Maternité* at Paris to elucidate clearly the true principle of axis-traction forceps, to enforce their adoption by many of the ablest and most eminent obstetricians in the world, and, as I believe, to make the most valuable contribution to the obstetric armamentarium that science has received in the past third of a century.

